$$\left(1-\frac{1}{2^{2n}}\right)S=1+\frac{1}{3^{2n}}+\frac{1}{5^{2n}}+\ldots\ldots;$$

$$\left(1-\frac{1}{2^{2n}}\right)\left(1-\frac{1}{3^{2n}}\right)S=1+\frac{1}{5^{2n}}+\frac{1}{7^{2n}}+\ldots\ldots;$$

$$\ldots\ldots \quad \ldots\ldots \quad \ldots\ldots \quad \ldots\ldots \quad \ldots\ldots \quad \ldots\ldots$$

all of the terms of the form $1/(2p)^{2n}$ being removed.

Ultimately, $\left[\left(1-\frac{1}{2^{2n}}\right)\left(1-\frac{1}{3^{2n}}\right)\left(1-\frac{1}{5^{2n}}\right)\ldots\ldots\ldots\ldots\right]S=1.$"

Let $S=S_1$ when $n=1$; then equation (1) becomes

$$\pi^2=6S_1=6\,\frac{1}{1-\frac{1}{2^2}}\cdot\frac{1}{1-\frac{1}{3^2}}\cdot\frac{1}{1-\frac{1}{5^2}}\ldots\ldots=6\frac{2^2}{2^2-1}\cdot\frac{3^2}{3^2-1}\cdot\frac{5^2}{5^2-1}\ldots\ldots\ldots$$

It is plain into what general form all of Bernoulli's Numbers of the form given by Boole, viz:

$$B_{2n-1}=\frac{2(2n)!}{(2\pi)^{2n}}\left[1+\frac{1}{2^{2n}}+\frac{1}{3^{2n}}+\ldots\ldots\right],$$

can be thrown.

Also solved by F. Anderegg, and G. B. M. Zerr.

GEOMETRY.

276. Proposed by G. I. HOPKINS, Manchester, N. H.

ABC is an equilateral triangle whose vertices are the centers of circles with radius *AB*, and *H* is the center of the arc *AB*. From *F*, the point of intersection of the circles whose centers are *A* and *C*, a line is drawn through *H* to the circumference *CAN*. Draw *BN*, and prove that the angle *ABN* is an angle of a regular pentagon.

Solution by G. B. M. ZERR. A. M., Ph. D.. Parsons, W. Va.

Let $BN=AB=AC=BC=a$. Then $BF=a\sqrt{3}$, $\angle ABF=\pi/6$, $\angle HFB=\pi/12$. $\therefore \angle HDB=\pi/4$.

$BN:BF=\sin\pi/6:\sin N$; $a:a\sqrt{3}=\sin\pi/6:\sin N$.

$$\therefore \sin N=\sqrt{3}\sin\pi/6=\frac{3-\sqrt{3}}{2\sqrt{2}}=.44828.$$

$\therefore N=26^\circ\ 38'$. $\therefore ABN=108^\circ\ 22'$, or $22'$ larger than the angle of a regular pentagon. The construction thus gives merely a rough approximation.

Also solved by L. E. Newcomb, and J. Scheffer.